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SOME BEES FROM AUSTRALIA, TASMANIA, AND THE NEW HEBRIDES.

BY T. D. A. COCKERELL.

In a paper published in PROC. ACAD. NAT. SCI. PHILA., 1913 (pp. 28-44), I gave a summary of the then known bee-fauna of Australia. During the last two years additional material has come to hand, and the present paper represents the completion of the later work, so far as the material now available permits.

Perhaps the most interesting problem now before us in connection with the new collections is that of the radical difference between the bee-faunæ of Tasmania and New Zealand. It becomes increasingly evident that while Tasmania is very poor in genera as compared with the Australian mainland, it is extremely rich in species in comparison with New Zealand. There can be no doubt that careful collecting in New Zealand will yield a number of additional species, but it is impossible to believe that it will at all approach Tasmania in the extent of its bee-fauna. The Tasmanian bees are very close to those of Australia, and many are even identical, showing clearly the derivation of the fauna. The New Zealand fauna is also wholly of Australian type, but extremely poor in genera and species. Isolation has prevented the accession of species from across the water, but one would expect a much greater development of endemic forms, something more or less parallel with the condition in the Hawaiian Islands. The New Zealand species are all endemic; *Prosopis vicina* Sichel was said to occur in Tasmania and New Zealand, but it was almost certainly based on a mixture, and the name is to be restricted to the New Zealand species. "*Andrena*" *infima* Erichs., from Tasmania, is probably, but not certainly, *Halictus lanarius* Smith. Mr. Meade-Waldo of the British Museum agrees with me that *Paracolletes providus* Sm. is *P. chalybeatus* Erichs. The species which Smith called *chalybeatus* Mr. Meade-Waldo thinks should be united with *P. obscurus* Sm. With these amendments the lists for Tasmania and New Zealand stand as follows. The Tasmanian species also found on the Australian mainland are marked with an asterisk.

TASMANIA. (79 species.)

Prosopis alcyonea Erichs.**honesta* Sm.*hobartiana* Ckll.*Prosopis perhumilis* Ckll.**xanthosphæra* Ckll. (King I.)*accipitris* Ckll.

- Pachyprosopis flavicauda* Ckll.*
Euryglossa walkeriana Ckll.
 nigrocærulea Ckll.*
 fasciatella Ckll.*
 latissima Ckll.
 nubilipennis Ckll.
Callomelitta picta Sm.*
 littleri Ckll.
Binghamiella antipodes insularis
 Ckll.
Paracolletes chalybeatus Erichs.*
 obscurus Sm.
 viridicinctus Ckll.
 obscuripennis Ckll.
 hobartensis Ckll.
 carinatus Sm.*
 melbournensis Ckll.*
 leai Ckll.
 marginatus Sm.*
 launcestonensis Ckll.
 subviridis Ckll.
Nomia submærens Ckll.
Halictus orbatu Sm.*
 cognatus Sm.
 limatus Sm.
 globosus Sm.
 representans Sm.*
 furneauxi Ckll.
 blighi Ckll.
 bassi Ckll.
 baudini Ckll.
 boweni Ckll.
 demissus Ckll.
 imitans Ckll.*
 seductus Ckll.*
 semipolitus expulsus Ckll.
 macrops Ckll.
- Halictus confusellus* Ckll.
 familiaris Erichs.
 warburtoni Ckll.
 mittelli Ckll.
 burkei Ckll.
 lanarius Sm.*
 hæmatopus Ckll.
 littleri Ckll.
 cyclognathus Ckll.*
 opacicolli Ckll.*
 niveifrons Ckll.
 disclusus Ckll.
 isthmialis Ckll.
 subinclinans Ckll.
 pulvitectus Ckll.
 tasmaniæ Ckll.
Parasphæcodes tilachus Sm.
 lithusca Sm.
 talchius Sm.
 stuchila Sm.
 altichus Sm.
 taluchis Sm.
 recessus Ckll.
 perustus Ckll.
 rhodopterus Ckll.
 rufotegularis Ckll.
 cervicalis Ckll.
 latissimus Ckll.
 excultus Ckll.
 wellingtoni Ckll.
 turneri Ckll.
Megachile leucopyga Sm.
 chrysopyga Sm.*
 ordinaria Sm.
 tasmanica Ckll.
Exoneura bicolor Sm.*
 hamulata Ckll.*

NEW ZEALAND. (18 species.)

- Prosopis agilis* Sm.
 agilis lævigata Sm.
 capitosa Sm.
 innocens Cam.
 maoriana Ckll.
 relegata Sm.
 cameroni Ckll.
 (*sulcifrons* Cam.)
 vicina Sich.
Paracolletes boltoni Ckll.
 confusus Ckll.
- Paracolletes imitatus* Sm.
 fulvescens Sm.
 metallicus Sm.
 purpureus Sm.
 vestitus Sm.
 maorium Ckll.
Halictus huttoni Cam.
 smithii D. T.
 (*familiaris* Sm.)
 sordidus Sm.

***Pachyprosopis saturnina* Ckll.**

Perth, Australia, Feb. 1-7, 1914. (*R. E. Turner*; Brit. Museum). The markings vary; the yellow at anterior corners of mesothorax may be extended, curving round to make two bands on anterior part of disc; there may be a large yellow extension of lateral face-marks mesad of lower end of facial foveæ; the scutellum in the Perth form is practically all yellow.

***Euryglossina hypochroma* sp. n.**

♀. Length about 3.75 mm.; robust, head and thorax shining black; abdomen dark, faintly purplish, above, but clear reddish-yellow below; legs clear yellowish-ferruginous, the anterior femora sometimes mainly black on outer side; mandibles chestnut red, dark at tip; a large yellowish spot on cheeks just above base of mandibles; clypeus and supraclypeal band fulvotestaceous (perhaps yellower in life); a very slender fulvous line running up inner orbits as far as facial foveæ; scape with a light stripe; flagellum thick, clear fulvous beneath; head large, subquadrate, front convex, shining; tubercles clear yellow; mesothorax shining, with extremely minute and sparse punctures, the disc microscopically cancellate; tegulæ testaceous; wings hyaline, nervures and the large stigma sepia; b. n. strongly arched; first r. n. joining first s. m.; second s. m. subquadrate; extreme apex of abdomen ferruginous.

Hab.—Perth, W. Australia, Feb. 1-7, 1914 (*R. E. Turner*; Brit. Museum.) 2 ♀ Allied to *E. perpusilla* (Ckll.), but larger and more robust, with fulvous clypeus, etc. It resembles *Pachyprosopis atromicans* Ckll., but is easily separated by the color of the femora, much smaller second s. m., etc.

***Euryglossina flaviventris* sp. n.**

♀. (Type). Length about 3.75 mm.; head and thorax black; abdomen black with a faint purplish tint above, the venter clear yellow, the extreme lateral margins and the apex rather broadly (the light color more extensive than in *E. hypochroma*) also yellow; legs bright yellow, anterior femora sometimes marked with black, hind tibiæ and tarsi dark brown on outer side; mandibles fulvous; a small fulvous spot on cheeks next to base of mandibles; linear lateral face-marks as in *E. hypochroma*; upper half of clypeus, and a supraclypeal band yellow; antennæ fulvous beneath; front shining; mesothorax microscopically tessellate; tubercles yellow.

♂. Clypeus, supraclypeal area and comparatively broad lateral face-marks yellow, the pattern essentially as in *E. perpusilla*; the lateral face-marks have a small projection opposite antennæ.

Hab.—Mt. Yule, Healesville, Victoria, Feb. 20, 1915, on *Eucalyptus calophylla rosea*, 3 ♀, 1 ♂. (R. Kelly; Brit. Museum.) Very close to *E. hypochroma*, from which the female is known by the dark lower part of clypeus and the more broadly light apex of abdomen. Also very close to *E. perpusilla* Ckll., but larger, with more light color on abdomen. It may be better regarded as a subspecies of *E. perpusilla*, but it appears quite distinct.

Euryglossina perpusilla var. **nana** n. v.

♀. Length hardly 3 mm.; abdomen wholly dark above, yellow beneath; clypeus and supraclypeal area wholly black (as in *E. cockerelli* Perkins); linear lateral face-marks poorly developed or absent; stigma dilute sepia.

Hab.—Kalamunda, S. W. Australia, Feb. 9–28, 1914, 2 ♀; also one March 1–11, 1914, 850 ft. (R. E. Turner; Brit. Museum). Compared with typical *E. perpusilla*, this looks distinct; but the Queensland *perpusilla* are so variable that it seems impossible to distinguish more than a variety. Some Mackay females lack the supraclypeal band.

Binghamiella antipodes insularis (Ckll.).

Mr. Littler has taken both sexes of *Binghamiella* at George Town, Tasmania, March, 1915. The males agree with my *B. insularis*; the females are what has passed as *B. antipodes* from Tasmania, but have the same essential distinctive characters as the males. There is sufficient reason for regarding the Tasmanian bee as a subspecies, but hardly a species.

Euryglossa depressa sparsa subsp. n.

♀. Differs from *E. depressa* Sm. by the very sparsely though very strongly punctured scutellum, and the anterior middle of mesothorax with scattered irregular punctures, instead of very numerous fine ones; also by having the flagellum ferruginous beneath, though this is variable, and sometimes very obscure. It is readily known from *E. subsericea* Ckll. by the darker, brown-stained wings, facial quadrangle shorter, etc. The mesothorax and scutellum are much more sparsely punctured than in *E. nigrocærulea* Ckll.

Hab.—Mt. Yule, Healesville, Victoria, Feb. 20, 1915, on *Eucalyptus calophylla rosea*—(R. Kelly; Brit. Museum). 3 ♀. Smith's description is insufficient to indicate which is the typical race of *E. depressa*, but I have taken as such the form which appears to be common in Victoria.

Prosopis extensa sp. n.

♀. Length about 4 mm.; slender, with long metathorax and subclavate abdomen, looking like some small Pemphredonid wasp; black, the front with an extremely obscure greenish tint; the thorax dull, with the prothorax, pleura and posterior face of metathorax shining; abdomen shining; head not far from round in front view; mandibles, labrum, linear lateral face marks ending about level of antennæ, lower margin and greater part of disc of clypeus yellowish-ferruginous, the pale color on clypeus ending suffusedly above; labial palpi with the second joint remarkably short and stout, almost globose, the third and fourth cylindrical, the third twice as wide as the fourth; maxillary palpi with the basal part stout, the second joint longest, the sixth tapering at end; antennæ rather slender; scape yellow in front, flagellum pale ferruginous beneath; front minutely punctured; vertex elevated, rounded; narrow (ridge-like) upper border of prothorax and the tubercles white; mesothorax densely sculptured with minute punctures and striæ; area of metathorax very large and long, minutely cancellate; legs black, the anterior tibiæ pale ferruginous in front; tegulæ piceous; wings hyaline, nervures and the large stigma piceous; b. n. falling far short of t. m.; first r. n. reaching first s. m. a considerable distance from its apex; second s. m. very small, quadrate; abdomen with microscopic transverse lineolation.

Hab.—Mt. Yule, Healesville, Victoria, on *Eucalyptus calophylla rosea*, Feb. 20, 1915 (*R. Kelly*; Brit. Museum). A very peculiar little insect, with *Euryglossina* venation. It is perhaps most like *P. scintilliformis* Ckll., from which it is known at once by the venation. It is by no means a typical *Prosopis*.

Prosopis aralis sp. n.

♀. Like *P. perhumilis* (which was collected on the same plant at same time and place), but the white face-marks are extended, the broad clypeal band having below (on apical margin of clypeus) a transverse narrow band extending on each side at right angles, while the supraclypeal area has a broadly triangular light mark, the clypeal marking thus resembling an altar with pedestal at base, the offering represented by the supraclypeal mark; hind tibiæ with more than basal third pale; all the basitarsi cream-color. The basal nervure nearly reaches t. m.

Hab.—Mt. Yule, Healesville, Victoria, on *Eucalyptus calophylla rosea*, Feb. 20, 1915 (*R. Kelly*; Brit. Museum) 2 ♀. Possibly a variety of *P. perhumilis*, but apparently distinct. In the coloration of the legs it resembles *P. accipitris* Ckll., from Tasmania.

Prosopis scintilliformis Ckll.

♀. Length about 4.75 mm.; black, similar to *P. perhumilis* and *aralis*, but more slender; mandibles white, rufous at end; narrow creamy-white bands along anterior orbits to level of antennæ; clypeus and supraclypeal area entirely black; first r. n. meeting first t. c.; legs marked as in *aralis*. Scape with a light stripe in front; flagellum pale fulvous beneath; tubercles and transverse marks on prothorax cream-color.

♂. Length about 4 mm.; slender like the ♀; face below antennæ (including transverse supraclypeal mark), and lateral marks with pointed extensions upward at sides, all very pale ochreous (perhaps yellower in life). The face-pattern is like that of the larger and more robust *P. perhumilis*, except that the lateral marks have their inner side longer, extending to beyond the middle of the supraclypeal mark. Both have the fourth antennal joint extremely short.

Hab.—Mt. Yule, Healesville, on *Eucalyptus calophylla rosea*, Feb. 20, 1915 (*R. Kelly*; Brit. Museum). 3 ♀, 1 ♂. The species was described (1913) from a single female collected at Croydon. The male is very distinct from *P. minuscula* Ckll.

Prosopis trimerops sp. n.

♀. Length about or hardly 4 mm.; another species of the type of *P. perhumilis*, but very minute, robust; face-marks rufofulvous (probably yellower in life), consisting of a broad clypeal band, broad lower margin of clypeus (leaving long-cuneiform black areas at sides of clypeus), narrow lateral face-marks which end acutely on orbital margin a little above level of antennæ, and large supraclypeal mark, which is broad below, more narrowed above, and ends in a broad truncation between the antennæ; the supraclypeal area is convex; scape with a light stripe; flagellum fulvous beneath; thorax robust, mesothorax finely lineolate and punctured; upper border of thorax without pale marks, and tubercles with only a very narrow yellow edge; legs marked nearly as in *P. aralis*, but hind basitarsi with only the basal half pale; b. n. almost meeting t. m.; second s. m. broad, receiving first r. n. near its base.

Hab.—Yallingup, S. W. Australia, Nov., 1913, 2 ♀ (*R. E. Turner*; Brit. Museum.)

Prosopis vittatifrons Ckll.

Perth, Australia, Feb. 1-7, 1914 (*R. E. Turner*; Brit. Museum).

Paracolletes halictiformis sp. n.

♀. Length about 8 mm., rather robust, with short wings; black, with mostly white pubescence; head broad; mandibles red, black

at base and apex; clypeus closely and very strongly punctured, but shining between the punctures; sides of face and cheeks with conspicuous pure white hair; front extremely densely punctured, the punctures strong, but much smaller than those on clypeus; area behind ocelli with erect fuscous hair; flagellum short, ferruginous beneath apically; mesothorax and scutellum with very dense distinct punctures; longitudinal median groove of mesothorax distinct; mesothorax and scutellum with evident pale hair around the edges, but otherwise only with thin short brownish hair, not hiding the surface; postscutellum with a tubercle, from which arises a large spreading tuft of hair, partly brownish and partly whitish; area of metathorax rugulose basally, margin finely beaded; posterior face of metathorax with a large deep pit; legs black, the hind tibiae red, the middle and hind basitarsi very broad; hind tibial scopa large, sordid white, suffused with brown behind; tegulae rufotestaceous; wings dusky; stigma small, dark reddish, nervures fuscous; b. n. just reaching t. m.; second s. m. receiving first r. n. slightly before middle; third s. m. receiving second r. n. nearly as far from end as first r. n. is from first t. c.; abdomen thick, very finely punctured; hind margins of segments brownish; segments 2-4 with conspicuous white marginal hair-bands, interrupted or very thin in middle of 2; hair at apex dark fuscous.

Hab.—Yallingup, S. W. Australia, Dec. 1 to Jan. 23, 1913-14. (*R. E. Turner*; Brit. Museum.) A peculiar little species, resembling *Halictus*. It may best be compared with *P. sigillatus* Ckll., but it is smaller than that, with much more closely punctured mesothorax. It may also be compared with the much larger *P. perfasciatus* Ckll.

Halictus urbanus Smith.

Kalamunda, S. W. Australia, Mch. 14-Apl. 14, 1914 (*R. E. Turner*; Brit. Museum). 1 ♀. This species, as I have recognized it, varies considerably in size and the color of the legs; it may be composite. The Kalamunda specimen is small, with red tibiae and tarsi, and agrees with one from Brisbane. This appears to be the true *H. urbanus*; the larger form (♀ slightly over 6 mm. long), with black legs, comes from Stradbroke Island (*H. Hacker*), and certainly would pass for a distinct species, were it not connected by intermediates. This Stradbroke I. form may take the name variety *stradbrokensis*, nov.

Halictus mundulus sp. n.

♀. Length about 5 mm.; black, with the mesothorax and scutellum dark bluish-green; pubescence scanty, dull white, no abdominal

bands or patches; head broad; mandibles ferruginous, dusky apically and black at extreme base; flagellum clear ferruginous beneath; mesothorax moderately shining, scutellum more polished; area of metathorax semilunar, densely irregularly wrinkled, the obtuse margin shining; knees, tibiæ and tarsi ferruginous, the tibia with obscure dusky suffusion; tegulæ amber color; wings hyaline, stigma and nervures pale testaceous; first r. n. meeting second t. c.; outer r. n. and t. c. colorless and very thin; abdomen broad, polished, with very thin pubescence; hind margins of segments obscurely reddish; caudal rima bright ferruginous; hair of venter long, but not curled to form a true scopa. Microscopical characters: clypeus very sparsely punctured; front striate, with punctures between the straiæ; third antennal joint extremely short, fourth a little longer, fifth still longer; mesothorax lineolate, with scattered punctures; abdomen with extremely minute punctures, best developed on first segment; hind spur with one very large obtuse tooth (like the last joint of a finger) and one very low rounded lamella.

Hab.—Kalamunda, S. W. Australia, Mch. 14–Apl. 14, 1914 (*R. E. Turner*; Brit. Museum). Allied to *H. urbanus*, but with the mesothorax quite differently colored. It may also be compared with *H. humilis*, but is quite distinct.

***Halictus brazieri* sp. n.**

♂. Length 11 mm. or slightly over; shining black, with scanty dull white pubescence; hair on inner side of basitarsi and fringe of caudal rima pale golden; outer side of tibiæ with hair partly dark fuscous; head ordinary, only moderately broad; mandibles black, dark red at extreme tip; clypeus shining, with strong not dense punctures, no median groove; front dull in middle, glistening at sides; antennæ pure black; mesothorax shining, with strong rather sparse punctures of practically uniform size; scutellum with very minute punctures, entirely different from those of mesothorax; mesopleura coarsely striate; area of metathorax short, with fine regular cross-striæ, the basal middle with irregular rugæ; sides of area posteriorly bounded by conspicuous elevations; posterior truncation strongly obliquely striate; hind spurs simple (microscopically very briefly serrulate); tegulæ black, a little reddish in middle; wings slightly brownish, stigma dull ferruginous, nervures fuscous, outer r. n. and t. c. much weakened; first r. n. joining end of second s. m.; abdomen shining, with extremely minute punctures; no hair-bands or patches, but third and fourth segments, and base of first, with thin pale glittering hair; hair at apex fuscous; venter with short stiff hair. The wings are unusually short.

Hab.—Yallingup, S. W. Australia, Nov., 1913 (*R. E. Turner*; Brit. Museum). Superficially exactly like *Parasphecodes noachinus* Ckll., but the stigma is more obtuse at end, marginal cell shorter, abdomen much more finely punctured, and basal nervure more strongly arched. The punctureless apical area on first abdominal segment is extremely narrow, less than half as wide as that of *P. noachinus*. These two bees are really congeneric, the genera *Parasphecodes* and *Halictus* practically meeting at this point. This and the next are named after Australian naturalists.

***Halictus spenceri* sp. n.**

♂. Length slightly over 8 mm.; black, rather robust, with thin white hair, faintly ochreous-tinted on head and on thorax above; abdomen without bands or patches, but a little pale hair at bases of second and third segments, and ventral segments with broad dense bands of white hair; face broad, eyes submarginate; mandibles black; clypeus with a low-triangular creamy white patch, its surface punctured, and with no median groove; antennæ long, black, flagellum moniliform; mesothorax shining (dull in front), with small punctures; scutellum very finely punctured, not bigibbous; area of metathorax semilunar, feebly sculptured, roughened basally with fine rugæ, the apical part microscopically areolate; mesopleura not striate; tegulæ piceous with a rufous spot, the anterior lateral margin pallid; wings dusky, stigma dark fuscous, nervures light fuscous; first r. n. joining second s. m. at end; third s. m. broader than second; abdomen shining, with very fine obscure punctures; apex with a large, broad, rounded, bright ferruginous plate. Front dull. Legs black, with pale hair.

Hab.—Yallingup, S. W. Australia, Sept. 14–Oct. 31, 1913. (*R. E. Turner*; Brit. Museum.) I thought at first that this might be the male of *H. brazieri*, but the structure is too different. It belongs to the group of *H. cambagei* Ckll., where it is easily distinguished by its large size. Some specimens are only about 7 mm. long.

***Halictus tannaensis* sp. n.**

♀. Length a little over 7 mm., robust; head broad-oval, dark bluish-green, the clypeus and supraclypeal area stained with crimson; face, front and cheeks with thin dull white hair, vertex with fuscous hair; mandibles black, obscurely reddish at apex; clypeus sparsely punctured; front dull, very finely striate; head truncate posteriorly, the occipital margin abrupt; antennæ dark, flagellum with only the faintest red tint toward end; antennal joints 2 to 5 measuring (length) in microns 128, 128, 144 and 176 respectively; mesothorax and

scutellum dullish, yellowish-green, with slight crimson tints, very finely but not extremely densely punctured; dorsum of thorax with thin brownish-tinted hair; area of metathorax semilunar, well-defined, with regular straight plicæ, on the basal half connected by minute cross-ridges; posterior truncation very hairy; legs black, not metallic, last joint of tarsi red; hair of legs black on outer side; hind femora slender, arched beneath, with a long curled pale scopa; inner side of tarsi with light ferruginous hair; hind spur with very long spines; tegulæ fuscous with a ferruginous spot; wings strongly dusky, stigma rufofuscous, nervures fuscous, outer r. n. and t. c. much weakened; second and third s. m. cells about equal, and together not as large as first; first r. n. joining third s. m. near base, third discoidal cell narrowed above; abdomen broad, shining, impunctate, obscurely bluish-green, hair at apex reddish, caudal plate narrow, exposed, venter with a scopa of long white hairs.

Hab.—Tanna Island, New Hebrides, June, 1900 (*J. J. Walker*; Brit. Museum). Allied to *H. perpessicus* Kohl, from Samoa, but easily distinguished by the longer, more oval head. Also allied to *H. saffordi* Ckll., from Guam, but the area of metathorax is quite different.

***Haliectus epiensis* sp. n.**

♀. Length a little over 6.5 mm.; superficially and structurally like *H. tannaënsis*, but easily distinguished by the following characters: mesothorax and scutellum narrower, more closely punctured, rich blue-green; area of metathorax larger, more finely sculptured, the very delicate rugæ joined by cross-rugæ, producing a fine reticulation, while apically delicate striæ pass obliquely to each side of a fine median plica; wings very dark (venation as in *H. tannaënsis*). The third antennal joint is very short, broader than long, a little shorter than the second or fourth.

Hab.—Ringdove Bay, Epi Island, New Hebrides, July 21, 1900. (*J. J. Walker*; Brit. Museum.)

***Haliectus pachycephalus* sp. n.**

♂. Length about 6 mm., rather robust, with very large broad head (wider than thorax) and short abdomen; black, with dull white hair, the legs ferruginous, the coxæ, trochanters, and basal half or more of femora black, anterior femora black behind except at extreme apex; spurs pale ferruginous. Head about 2.17 mm. wide; mandibles pale yellow with the apex broadly black; labrum pallid; clypeus with a pale yellow apical band, broad in middle; white hair of face

not concealing the shining surface; front dull except at sides, densely punctured, with oblique (mainly transverse) wavy rugæ above the antennæ; a small shining space on each side of middle ocellus anteriorly; antennæ slender, moderately long, the flagellum dull reddish; length of antennal joints in microns, (1. = scape), 560, (2.) 128, (3.) 144, (4.) 240; mesothorax polished and shining, sparsely and finely punctured, median and parapsidal grooves distinct; scutellum shining, the disc impunctate; legs with pale hair; basitarsi cream-colored at base, and a cream-colored spot at base of hind femora; tegulæ rufotestaceous with a pale yellowish mark; wings hyaline, stigma and nervures ferruginous; stigma large; first r. n. meeting second t. c.; third s. m. large, broader above than second; hind wing with four spines on costa much before origin of radial vein, a group of four large hooks (close together) beginning at origin of radial vein, and a group of three hooks a short distance beyond; abdomen shining, very finely punctured, with a thin pruinose pubescence, but no bands or spots; apex with white hair; a broad, rounded, very obtuse red apical plate; venter not very hairy.

Hab.—Yarrawin, New South Wales, 1914. (W. W. Froggatt, 250.) Related to *H. spenceri*, but easily separated by the color of the legs. The red stigma and other characters separate it from *H. dolichocerus* and *H. hæmatopus*.

***Haliectus dolichocerus* sp. n.**

♂. Length 5 to 6 mm., rather robust, with short broad abdomen; head large, but not conspicuously so as in *H. pachycephalus*; pubescence rather short, dull white; lateral bases of abdominal segments 2 to 4 with cuneiform patches of white tomentum; legs bright ferruginous, blackened at base, anterior femora black except at apex, middle and hind pair with less black; tibiæ with a blackish patch. Eyes rather strongly converging below; clypeus with a broad apical band, which is angularly produced above in middle; face, and whole of front, with rather dense white hair, partly concealing surface of front; front dull; supraclypeal area polished and shining; antennæ extremely long, dark, the fourth joint bright or obscure red beneath; flagellum strongly crenulate beneath; mesothorax polished, finely and not densely punctured; scutellum brilliantly shining, middle of disc impunctate; area of metathorax crescentic, with weak plicæ; margin of area polished; tegulæ rufotestaceous; wings hyaline, nervures and stigma sepia; second s. m. variable; first r. n. joining second t. c. or entering basal corner of third s. m.; third s. m. very large, quadrate, sometimes longer than high; abdomen shining, very

finely punctured, apical half of second segment punctured, not lineolate.

Hab.—Type from Yarrowin, N. S. W., (*Froggatt* 225). Also two from Brewarrina, N. S. W., 1914 (*Froggatt*). The basitarsi may be distinctly yellowish. By the general form and very long antennæ this resembles *H. hæmatopus* Ckll., but it is readily distinguished by the shining mesothorax.

***Haliotus supralucens* sp. n.**

♀. Length about 6.5 mm.; of ordinary form, black, with rather scanty white hair; dense bands of pure-white tomentum at extreme bases of second to fourth segments, the central part on second hidden by overlapping first segment; legs very dark brown, with pale hair. Head broad; mandibles black, with a faint red subapical spot; clypeus shining, with irregular strong punctures; front dull except at sides, finely striate; antennæ dark, flagellum with a very obscure reddish tint beneath; mesothorax shining, with irregular large and small punctures, the disc not lineolate or reticulate; parapsidal grooves deeply impressed; scutellum flattened, depressed in middle, strongly polished, almost entirely impunctate; area of metathorax large, poorly defined, appearing rugose from a fine raised reticulation, but the apical part smooth and shining; hind basitarsi with apical brush brilliant orange-ferruginous; tegulæ rather dark chestnut-red; wings dusky, nervures brownish; stigma large, dull amber-color; second s. m. large; first r. n. meeting second t. c. or joining apical corner of second s. m.; abdomen shining at base, duller beyond, with extremely fine punctures; caudal rima fringed with brown hair; venter with white hair, not forming a curled scopa.

Hab.—Kalamunda, S. W. Australia, Feb. 9–28, and at 850 ft., March 1–11, 1914. (*R. E. Turner*; Brit. Museum.) Near *H. mediopolitus* Ckll., but sculpture of mesothorax entirely different. Easily known from *H. orbatus* Sm. by the polished scutellum.

***Haliotus demissus* sp. n.**

♀. Length nearly 5.5 mm.; black, with the mesothorax shining green, polished, with sparse punctures of different sizes, the parapsidal grooves very distinct; scutellum also polished, but not green; pubescence scanty, dull white, the abdomen without hair-bands or spots; mandibles chestnut red except basally; clypeus shining, front dull and granular; flagellum entirely dark; area of metathorax large, with delicate but very distinct radiating striæ; legs black; wings hyaline, nervures and the very large stigma sepia; first r. n. joining

second s. m. a little before end; outer r. n. and t. c. very weak; third s. m. very short; abdomen polished, shining, venter with a scopa of long curled hairs. Microscopical characters: front densely covered with elongated punctures running into striæ; surface of mesothorax very delicately reticulated; area of metathorax minutely reticulated between the ridges; hind spur with four obtuse spines.

Hab.—Launceston, Tasmania, Nov. 1, 1914, 2 ♀ (*F. M. Littler*, 2,699). Related to *H. humilis* Sm., but distinguished by the dark legs and striate area of metathorax.

***Haliectus forticornis* sp. n.**

♂. Length about 4 mm.; black, with very scanty pale pubescence, no bands or patches on abdomen; head broad, eyes converging below; mandibles pale yellow, ferruginous at apex; lower half of clypeus pale yellow; middle of face shining, front dull; cheeks unarmed; scape black; flagellum very long, thick, submoniliform, light orange-ferruginous beneath; mesothorax and scutellum shining, smooth and polished; area of metathorax roughened basally, but with a broad shining rim; legs black, with knees, apices of tibiæ, and anterior tibiæ in front, ferruginous; tarsi very pale reddish approaching cream-color; tegulæ dark ferruginous; wings hyaline, nervures and the large stigma testaceous; first r. n. joining apical corner of second s. m.; outer r. n. and t. c. extremely weak; abdomen short, shining; sides of venter testaceous. Microscopical characters: front striate; mesothorax with sparse minute punctures, the surface of the disc not lineolate or reticulate; first two abdominal segments distinctly but minutely punctured, the depressed apical part of second transversely lineolate.

Hab.—Kalamunda, S. W. Australia, Feb. 9–28, 1914 (*R. E. Turner*; Brit. Museum). Very close to *H. cyclognathus* Ckll., but head smaller, antennæ longer, and area of metathorax different.

***Haliectus imitans* Ckll.**

George Town, Tasmania, Nov. 15, 1914 (*Littler*). New to Tasmania. On Nov. 29 Mr. Littler took *H. lanarius* Sm. at George Town.

***Haliectus seductus* Ckll.**

Bridport, Tasmania, Oct. 26–30, 1913 (*Littler*). New to Tasmania.

***Haliectus semipolitus expulsus* subsp. n.**

♀. Flagellum black (red at end in typical *semipolitus*); tegulæ piceous or more or less reddish.

Hab.—Georgetown, Tasmania, Nov. 15 and 29, 1914 (*F. M. Littler.*)

***Halictus macrops* sp. n.**

♂. Length 5 mm. or a little over; black, robust, looking like a female, the head very large and broad, the antennæ (which are entirely dark) not very long; hair of head and thorax long, dull white, slightly creamy on thorax above; on abdomen the hair is thin and rather long, rather abundant on apical segments, but not forming bands or patches; apical plate of abdomen very broad, piceous. Mandibles dark red apically; lower margin of clypeus without yellow; hair of face abundant, but not concealing shining surface of clypeus; front dull; mesothorax polished, with fine scattered punctures; scutellum dullish; area of metathorax narrowly crescentic, roughened, with minute short plicæ; legs black, with white hair; tegulæ rufo-fuscous, darkened in front; wings hyaline, stigma and nervures dark reddish, outer r. n. and t. c. evanescent; first r. n. meeting second t. c.; second s. m. very narrow, third large, about twice the size of second; abdomen shining, with very minute punctures, hind margins of segments more or less pallid. Microscopical characters: clypeus distinctly but sparsely punctured, the punctures emitting long plumose hairs; front densely punctured, in the middle also striate, the ridges between the punctures emphasized; mesothorax distinctly but not at all densely punctured, the surface of the disc not reticulate or lineolate; punctures of scutellum smaller than those of mesothorax; first abdominal segment and basal half of second well though minutely punctured, apical half of second transversely lineolate.

Hab.—Launceston, Tasmania. (*F. M. Littler.*) This may be compared with *H. niveifrons* Ckll., from which it is easily known by the broad face.

***Halictus lanariellus* sp. n.**

♀. Length about 8 mm., the abdomen large; black, with dull white hair; bases of abdominal segments 2 to 4 with broad bands of white tomentum, having a faint creamy tint, especially at sides of 2, where it is very dense, the band on 4 so broad as to occupy more than half the segment; legs black, the tarsi ferruginous at apex. Head broad; mandibles obscurely reddish apically; clypeus and supra-clypeal area shining and sparsely punctured; front extremely densely punctured, not striate; antennæ dark, flagellum faintly reddish below at apex; mesothorax shining, strongly and rather closely punctured; scutellum shining, depressed and punctured in middle, but

the disc on either side impunctate; area of metathorax crescentic, with fine plicæ which in the middle run into a reticulation, giving a subrugose effect under a lens; hind femora and trochanters with long curled floccus; hind spur simple; tegulæ dark rufous; wings hyaline, stigma and nervures ferruginous; second s. m. very broad, receiving first r. n. at apex; abdomen shining where not covered with tomentum, extremely finely punctured; venter with long white hair, not forming a curled scopa.

Hab.—Yarrawin, N. S. W. (*Froggatt*, 233). Close to *H. lanarius* Sm., but smaller and more shining.

***Haliectus confusellus* sp. n.**

♀. Length about 7 mm.; black, with dull white hair; lateral bases of second and third abdominal segments with cuneiform patches of dense white tomentum, the apical part of abdomen also hairy, but not densely; legs black. Mandibles black, faintly reddish subapically; clypeus and supraclypeal area shining, sparsely punctured; front densely punctured; antennæ black; mesothorax and scutellum shining, but very distinctly and quite closely punctured all over; area of metathorax crescentic, with fine radiating plicæ; hind spur peculiar, with a very broad rather short lamina, and a low keel-like one beyond, the latter slightly inclined to be double; tegulæ rufopiceous; wings slightly dusky; nervures fuscous, stigma dull ferruginous; outer r. n. and t. c. evanescent; first r. n. reaching extreme apex of second s. m.; third s. m. much broader above than second; abdomen shining, very finely punctured.

Hab.—Launceston, Tasmania (*F. M. Littler*). Known from *H. imitans* Ckll. by the ferruginous stigma and shorter area of metathorax.

The following key will facilitate the separation of a number of species of *Haliectus* discussed above:

Mesothorax green.....	1.
Mesothorax black; abdomen black.....	4.
1. Small species, with red (or mainly red) tibiæ.....	2.
Larger species, with dark tibiæ.....	3.
2. Green of thorax very bright.....	<i>urbanus</i> Sm.
Green of thorax obscure.....	<i>mundulus</i> Ckll.
3. Mesothorax shining, sparsely punctured.....	<i>demissus</i> Ckll.
Mesothorax dull, much more closely punctured.....	<i>subinclinans</i> Ckll.
4. Males.....	5.
Females.....	10.
5. Lower margin of clypeus not yellow.....	<i>macrops</i> Ckll.
Lower margin of clypeus yellow or cream-color.....	6.

6. Very small, less than 5 mm. long, tarsi yellowish...*forticornis* Ckll.
Larger, at least over 5 mm. long.....7.
7. Tarsi black.....*spenceri* Ckll.
Tarsi red or yellow.....8.
8. Stigma ferruginous; head broad and massive....*pachycephalus* Ckll.
Stigma fuscous.....9.
9. Mesothorax shining.....*dolichocerus* Ckll.
Mesothorax dull.....*hæmatopus* Ckll.
10. Small, hardly 5.5 mm. long.....*semipolitus expulsus* Ckll.
Larger.....11.
11. Disc of mesothorax with scattered punctures of different sizes,
supralucens Ckll.
Disc of mesothorax well punctured, the punctures uniform.....12.
12. Fourth abdominal segment, except broad apical margin, densely
covered with pale felt-like hair.....*lanariellus* Ckll.
Fourth segment not so.....13.
13. Hind margins of abdominal segments reddened; area of meta-
thorax with irregular sculpture.....*pulvitectus* Ckll.
Hind margins of abdominal segments black; area of metathorax
with fine definite longitudinal plicæ.....14.
14. Stigma ferruginous; area of metathorax shorter.....*confusellus* Ckll.
Stigma piceous; area of metathorax longer.....*imitans* Ckll.